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► Japan's Past Lingers

► Index: Vol. XXXV, Nos. 1-10

► California Condor

► Ankara, No. 4 in City Series

► Kitimat, Canada's Colossus

JAPANESE LANTERNS, widely used, take shape from paper, bamboo, and craftsmanship

NATIONAL GEOGRAPHIC PHOTOGRAPHER J. BAYLOR ROBERTS

Japanese ships cruised every ocean. In the 1930's economic expansion became military conquest. War flamed, leaving the Japanese Empire a smouldering ruin. Later, under American supervision, the Japanese eyed world markets again.

Like Great Britain (GSB, Oct. 8, 1956), Japan has too many mouths to feed, and too few resources to nourish industry. Though the islands spread more than 1,200 miles along Asia's coast their total area is less than California's—with eight times California's population. Ridged by mountains (some 500 peaks are volcanic), only about 15 per cent of the land can be farmed. Rice grows on tiny flooded fields (above) often reclaimed from tidal flats or terraced on hillsides (below). The average farm includes only two and a half acres (compared to 165 acres in the United States), but the Japanese farmer carefully cultivates every square foot of his soil. Good rainfall helps. In the muggy southern islands many farmers grow two crops of rice a year.

Few families spare any land to grow fodder for cattle, so meat is a luxury. Japanese eat fish instead. Fishermen range far to meet the demand. Other foods, even rice, must be supplemented by imports to feed some 90,000,000 people.

To buy food from abroad, Japan has only one major export—the manufactured products of its skillful, hard-working people. Since the land is notoriously poor in minerals, exports must also pay for oil, iron, other minerals.

Life in Japan is attuned to frugality. To Americans, the country seems extraordinarily tidy. Forests, the carefully guarded pride of Japan, look like park lands. Houses are small, bare yet tasteful, spotlessly clean. Outside walls are thin wood sheets. Inside, plaster covers a network of bamboo (next page).

NATIONAL GEOGRAPHIC PHOTOGRAPHER J. BAYLOR ROBERTS

Japan's Past Lingers

Though Changes Rock the Island Nation

THIS bronze Buddha drowses peacefully in the Asakusa District of Tokyo. Children clamber upon it and the restless life of Japan's capital surges around it. Yet it dreams of the past, of Japan's long isolation and sudden emergence on the world scene.

Some say Amaterasu-O-Mi-Kami, goddess of the sun, flicked four dewdrops from her scepter to form Japan's four main islands. Scientists prefer to believe that Hokkaido, Honshu, Kyushu, and Shikoku, along with hundreds of lesser islets in the Japanese group, are the peaks of a vast mountain range rising from the floor of the Pacific. Anchored in Alaska, the submarine range breaks surface to form the Aleutians, the Kurils, Japan, the Ryukyus, the Philippines.

This is a young mountain chain, say the scientists. It is still growing, shifting, and causing an average of some 1,500 small earthquakes a year in Japan. Some have not been so small. In 1923, Tokyo itself was flattened when the earth shook. Phoenixlike, it rose from ashes only to be razed by World War II bombs. Today the sprawling capital is hardly ten years old. Yet it's celebrating its 500th anniversary.

OUTDOOR PHOTOGRAPHERS LEAGUE

Perhaps Asakusa's Buddha witnessed one of Japan's most significant moments 103 years ago, when Commodore Matthew C. Perry brought his American warships into Tokyo Bay to open Japan for world trade and end two centuries of isolation. Since then, trade has been Japan's strength, its downfall, and now its hope for the future. After Perry's visit, the strangely medieval nation of farmers and fishermen learned to manufacture, to compete with other nations in selling goods on the world market.

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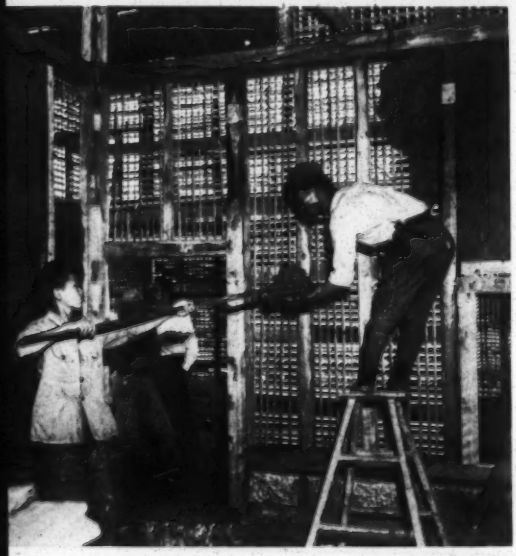
Aden 28-29
Africa Sahara 37-39 *See also* Egypt; Liberia; Libya
Agriculture Belgium 63; Great Britain 15; Japan 110, 111; Switzerland 73
Alabama Russell Cave 32-33
Albania 94, 95-96
Animals aardvark 66-67; camels 37, 39; donkeys 94, 95, 107; horses 63, 101; moose 59-60; prairie dogs 79; sheep 16
Ankara, Turkey 116-117
Antarctica 80-81
Anthropology early cave man 32-33
Arabian Peninsula desert 39, 40 *See also* Aden; Kuwait
Archeology Russell Cave 32-33
Asia deserts 39-40 *See also* Aden; Japan; Kuwait; Singapore; Turkey
Astronomy Mars 5
Australia Melbourne 82-84; Olympic Games 104-105
Belgium 61-63
Bell, Alexander Graham 23-24
Birds California condor 114-115; migration (Arctic tern, curlew, snow geese) 44-45; turkey 92
Boats and ships fishing 108; freighters 2, 4, 10, 14; *HD-4* 23; *Mayflower II* 88; schooners 103
Boy Scouts 80-81
British Commonwealth *See* Aden, Australia, Canada, England, Singapore
Bulgaria 94, 95
California desert 38, 40
Canada Kitimat 118-120 *See also* Museums
Canals 2-4
Caves Alabama 32-33
Chicle (chewing gum base) 89-91
Churches Colombia 9; Finland 48; Sinai Peninsula 87
Colombia 8-10
Columbus, Christopher 17
Crafts lacemaker 61
Czechoslovakia 85, 94, 96
Deserts 37-40 *See also* Sinai Peninsula
Dwellings Canada 119; Greece 107; thatched, Ifalik 19; Japan, 111, 112; thatched, Liberia 99; grass, Venezuela 53; Wales 16
Education Kuwait 57; school transportation 71-72; Switzerland 74
Egypt 1-4 (Suez) *See also* Sinai Peninsula
England Brixham (*Mayflower II* launching) 88; London 14, 15; Shaftesbury 13
Europe *See* Albania, Belgium, Bulgaria, Czechoslovakia, England, Finland, Greece, Hungary, Italy, Poland, Romania, Scotland, Switzerland, Wales, Yugoslavia
Expeditions Antarctica 80-81
Finland Helsinki 46-48
Fortress Virgin Islands 102
Greece 97, 106-108
Harbors and ports Aden 28-29; Helsinki 46-48; London 14, 15; New York 7; Ragusa 95; Singapore 11-12; Venezuela 52
Helsinki, Finland 46-48
Hungary 93
Hurricanes 17
Ifalik 18-19
Industries automobiles 84; diamond cutting 63; Great Britain 14-16
International Geophysical Year Antarctica 80-81 *See also* Satellite
Islands *See* Ifalik, Virgin Islands
Italy Pisa 30-31
Japan 109-112
Kitimat, Canada 118-120
Kuwait 56-58
Latin America *See* Colombia, Venezuela
Liberia 98-100
Libya camels 39
Maple syrup 21, 22
Maps artificial satellite orbit 42; Bombay-London shipping routes 3; Central Europe 96; curlew's migration route 45; Kitimat 120; Kuwait 57; Melbourne 84; Suez Canal 3
Melbourne, Australia 82-84
Mexico chicle 91
Mines and minerals aluminum 118-120; iron ore 52; tungsten 34-36
Missouri Hannibal 54-55
Mountains Alps 73, 74, 75; Green 20; Pindus 107; Sinai 87; Transylvanian Alps 95
Museums Alexander Graham Bell Museum 23-24
National Geographic Society 5, 32-33
National Monuments U.S.: Devils Tower 78-79
National Parks U.S.: Virgin Islands 102-103
New York Liberty Island 6-7; Mohawk Valley 68-70
North Carolina tungsten 34-36
Oil Aden 29; Arabia 40; Colombia 9; Kuwait 56; Venezuela 50, 51
Olympic Games 104-105
Poland 93, 95, 96
Political campaigns 64-65
Power Canada 118-120; hydraulic turbine 76
Presidents, U.S., 27, 64-65
Rivers Danube 93; Thames 15; Yarra 82
Romania 94-95
Rubber Liberia 99-100
Satellite artificial 41-43
Scotland sheep 16
Sinai Peninsula 86-87
Singapore 11-12
Siple, Dr. Paul A. 80-81
Sports football 77; hockey 105; mountain climbing 73 *See also* Olympic Games
Statues Kemal Ataturk 117; Simón Bolivar 51; Statue of Liberty 6, 7
Suez Canal 2-4
Switzerland 73-76
Trade Great Britain 14-16
Transportation bicycles 76; bullock carts 71; cable-car 72; tractors 81, 98; trains 95
Trees maple 22; sapodilla 89, 90
Turkey Ankara 116-117
Twain, Mark (Samuel Clemens) 54-55
United States deserts 38, 40; early cave man 32-33; political campaigns 64-65; Revolution 25-27, 70 *See also* Missouri, New York, North Carolina, Vermont, Virgin Islands, Wyoming
Venezuela 49-53
Vermont 20-22
Virgin Islands 102-103
Virginia *See* Yorktown
Wales 16
Wyoming Devils Tower 78-79
Yorktown, Va. 25-27
Yugoslavia 94, 95, 96

UMI

SHOELESS DOCTOR, with top-grade training, makes house call to check a new baby

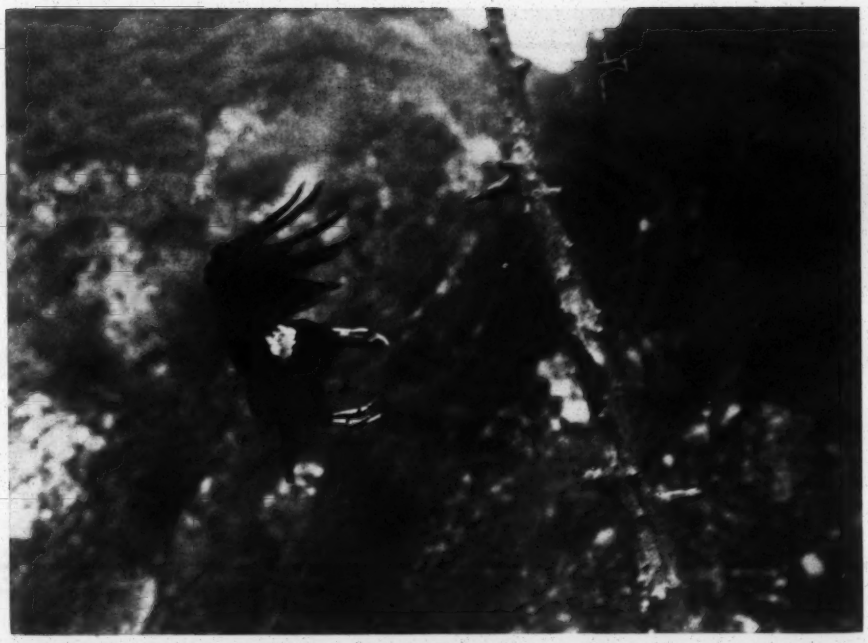
When you enter a Japanese home, you kick off your shoes to avoid damaging the straw mat floor. There's seldom a place to sit. You realize that the low wood table on which supper is served can only be approached by kneeling before it on a padded mat. At bedtime, sleeping mats are spread on the floor. In the country a hot bath consists of a tub, filled with buckets of well water, left to warm beside a stove. Family members often wash and rinse outside the tub then soak, in turn, inside it.

PHOTOS BY NATIONAL GEOGRAPHIC PHOTOGRAPHER J. BAYLOR ROBERTS



Focal point of most homes is a niche in one wall containing a family shrine, or perhaps a carefully executed flower arrangement. Food must please the eye as well as the palate. When blossoms erupt on hillsides, Japanese throng to admire and photograph them. The glorious symmetry of Mt. Fuji, looming more than 12,000 feet high southwest of Tokyo, draws hordes.

In Japan's burgeoning cities (Tokyo has an estimated population of 8,250,000) neon lights, pinball machines, department stores, and western dress make New Yorkers feel at home. But at evening, businessmen return home to slip on kimonos and live in the old way—the way that Buddha knows.—E.P.



COMING IN FOR A LANDING, a 20- to 25-pound condor tilts his great wings for the same reason that a B-36 lowers flaps—to slow air speed and keep from overshooting the landing area. The bejowled granddad, below, may live to be 35 years old

scouring the countryside to feed it.

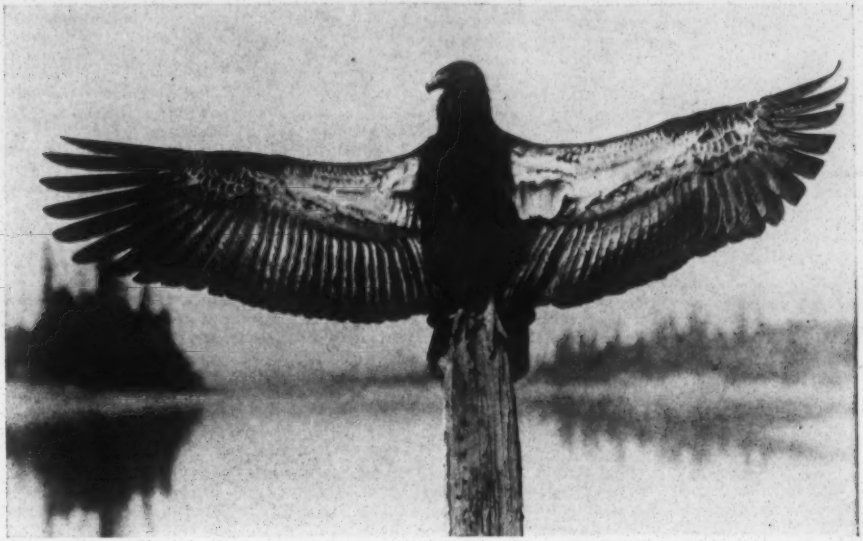
Hunters moving westward took a heavy toll of the California condor. The white markings under the wings made a good target. Huge wing feathers with great hollow quills served prospectors as handy containers for gold dust.

The condor has always had a struggle to survive. As only one egg is laid, and that not necessarily every year, the dwindling species faces the constant prospect of extinction.—

BIRD AND ANIMAL QUIZ Answers to be found in *Geographic School Bulletins*, issues 1-10, 1956

1. **What caused the near-extinction of the wild turkey?**
2. **Was the turkey first discovered by the Pilgrims?**
3. **Where could you find an aardvark in natural surroundings?**
4. **How does the aardvark play a role in nature's balance?**
5. **Why are moose sometimes thought of as aquatic mammals?**
6. **At what time of year are moose unpredictable? Why?**
7. **What bird holds the distance record for migratory flight?**
8. **How big is the condor's egg? Where are nests found?**
9. **What did Lewis and Clark think of the Appaloosa horse?**
10. **Where did this unusual horse come from? What named it?**

UMI



PHOTOGRAPHS BY WILLIAM L. AND IRENE FINLEY

America's Mammoth Bird

THE mighty wings of the California condor, above, span eight and a half to 11 feet. They seem capable of propelling this huge vulture anywhere. Yet, sadly, it flies toward threatened oblivion. Only some 60 condors, North America's largest land birds, remain in existence, clinging to a sanctuary in California's Los Padres National Forest.

Chile, Ecuador, Colombia, and Bolivia acclaim the Andean condor, the Californian's cousin, on their coats of arms. But there is nothing very warlike or courageous about this family of big, placid carrion-eaters. Completely undeserved was the condor's early reputation as a dive-bombing predator that might swoop down and carry off lambs, calves, or even babies. Actually, the big fellow suffers from weak feet. He has trouble walking on them, much less clutching prey. To get off the ground he lurches into a shambling, ludicrous run, beating his huge wings. If he comes to the edge of a sharp cliff, so much the better. He simply totters over the brink, feverishly flapping to gain air speed. Once air-borne, he becomes a spectacle of peerless grace, soaring as high as 15,000 feet, a bright eye peeled for signs of a ready-made sun-warmed dinner.

Drably dressed in blackish or plain brown coat, the California condor sports a bright red and orange head and neck—bald as a condor egg. But despite its somewhat repulsive features, the big bird is reputed to be a mild-mannered character, insatiably curious, amiable in its home life. It lives in high, cliffside caves where it lays its single egg, four and one half inches long, large enough to hold a pint of water. Baby condor grows slowly. For more than three months it basks in mountain sun (above) while dad and mother lumber into the air,

try's George Washington. A blue-eyed, red-headed young Turk, he led his nation's battle for independence and proclaimed it a republic. Moving the capital from Istanbul in 1923, he started transforming Ankara from a dusty, run-down town of 35,000 inhabitants into a modern metropolis of some 295,000. Separating church and state, he abolished the rule of caliphs—religious and political leaders. He introduced the Latin alphabet. Women were given the right to vote and pursue professions. Veils just got in the way so were abandoned. As for the fez, it was outlawed.

At a terrace café you sip bittersweet Turkish coffee. You see 3rd century Roman baths. Mosques recall the Middle Ages.

In the golden late afternoon you climb to oldest Ankara, the Citadel. Here ancient warriors guarded a crossroad. Their white tower keeps patient vigil as electric lights twinkle to life in Ankara's streets.—J.A.

TURKISH INFORMATION OFFICE

HURRYING TO WORK, modern Ankara passes the statue of Kemal Ataturk. The "Father of Turks" launched women into professions alongside men—witness the laboratory technicians below

LEO STOECKER, ACME

TURKISH INFORMATION OFFICE

ANKARA, TURKEY'S CAPITAL

Number four of the cities of the world series

THE Orient Express takes you as far as Istanbul. From here a night train speeds you across hilly, almost treeless Anatolian Plains toward Turkey's capital, Ankara. A lemon-yellow dawn awakens you. You have time to gather belongings before the train hisses into Ankara's station.

Remembering scenes from the Arabian Nights you look forward to seeing your first red fez, or perhaps a dervish padding along twisting Oriental streets in ballooning breeches and curly-toed shoes. You've got surprises in store.

Blinking into a warm bright sun, you step into a street milling with pedestrians and cars. Taxis honk along a boulevard broader than Broadway. People in European dress hurry past new buildings. Not a fez in view. You are sure you took the wrong train.

A Turkish schoolgirl, books under one arm, gives you directions in careful English. She wears no veil. As you chat she expresses lucid views on foreign affairs. You can't hide your astonishment on finding that Turkish women can have educated opinion. Amused, she murmurs something about changing times, then runs for her bus.

Dry air smells faintly of pine as you follow the tree-shaded boulevard uphill. Past the modern opera house is Victory Monument with its statue of Kemal Ataturk. One of Ankara's storks makes a landing on the statue's shoulder. You, the stork, and Ataturk command a sweeping view of the city, with its schools, banks, and office buildings.

The stork doesn't know about the missing fez and veil, and he never read Arabian Nights. But Ataturk, could he speak, would explain. He was the coun-

Carved from solid rock, Kemano's cavernous power station houses 16 mighty generators like this

Indian village 50 miles away where the enormous smelter would transform a powdery extract of bauxite ore into the aluminum needed in everything from airplanes to kitchen pans.

A call went out for workmen accustomed to heights; and soon power lines throbbing with Kemano electricity were strung over snowy mountains to Kitimat. One of the northland's strangest sights unfolded as the work progressed. Below soaring cliffs, helicopters hovered above workmen, dropping them materials. Echoes rang down valleys as 400-pound steel anchor bolts, suspended beneath the whirlibirds' bellies, were lowered to platforms precariously perched on mountainsides. Sunk into rocks, the bolts secured cables supporting transmission lines. Workmen often reached the tower sites by helicopter. Sometimes in the wild green and rocky loneliness workmen found some fun: bears prowled in garbage dumps around the tents and were chased away with whoops and cries. Sometimes, mishaps came: one January an avalanche crashed down

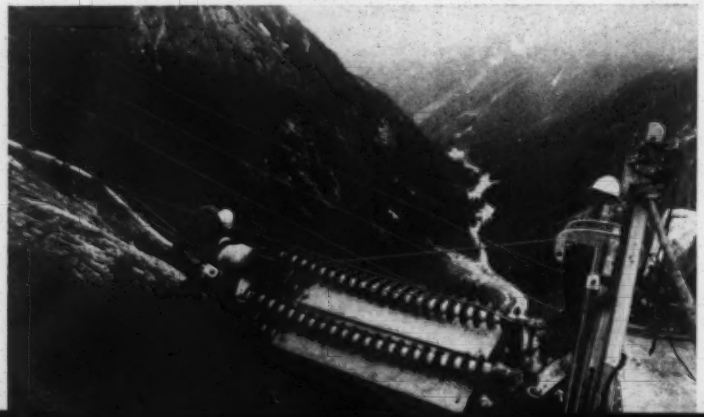
DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF

ALUMINUM COMPANY OF CANADA, LTD. (RIGHT)

Kitimat's pioneer citizens find few hardships in model company town

This temporary camp served during powerline construction

PHOTOGRAPHS BY ALUMINUM COMPANY OF CANADA, LTD.



Kitimat, CANADA'S COLOSSUS

NOT long ago, few places on earth seemed less likely to succeed than icy Kitimat, in British Columbia's frontier wilds. But look now. Kitimat's hotel rooms rival the best. Two-toned taxis scurry about in the glow of neon signs. Churches raise their steeples, and children jam schools. Forty babies a month see the first light of day in the hospital. Residential areas mushroom from materials rushed 400 miles from Vancouver. More than 9,000 inhabitants look to the day when Kitimat will reach its planned population of 50,000, becoming British Columbia's third largest city.

What happened? Twenty years ago Canadian humorist Stephen Leacock said, "We admire the Americans for the way they shovel up mountains and shift river courses and throw the map all around the place." Now, the Canadians have done just that—and started Kitimat toward becoming the largest aluminum smelter in the world.

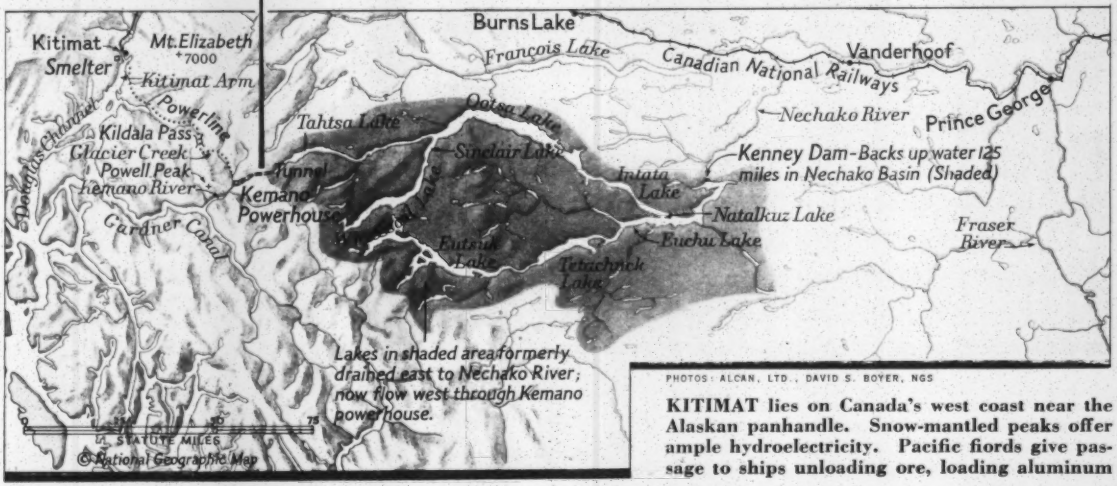
Seldom have engineers planned so big. For one thing, the Nechako River flows east when it should flow west to serve the project. So workmen tore a granite mountain apart in teeming truckloads and dumped it to build the world's largest sloping, rock-filled, clay-core dam. Bottled up, Nechako reversed its flow, creating a reservoir 125 miles long. The enormous lake presses against the Coast Mountains, its surface half a mile high. Thus, a powerful water pressure was built for a sea-level power station at Kemano, only 10 miles away on an arm of the Pacific. The 10 miles, however, lie through solid granite. Powerful machinery clawed a tunnel through it, enabling the water to plummet 2,600 feet through generators producing more kilowatts than any others now on earth. The powerhouse itself sprawls in an atom-bomb-proof excavation that will be big enough to dock the Queen Mary.

Building the world's mightiest underground power station, miners cut a quarter mile inside Mount DuBose. Ribbed with concrete, the station is sizable enough to embrace a cathedral.

With that monstrous task accomplished, no breather came for the engineers. Kemano's power had to reach Kitimat, the once-drowsy

Linemen become aerialists high above Kemano Valley

Water plunges the height of 16 Niagaras from reservoir to powerhouse



PHOTOS: ALCAN, LTD., DAVID S. BOYER, NGS

KITIMAT lies on Canada's west coast near the Alaskan panhandle. Snow-mantled peaks offer ample hydroelectricity. Pacific fiords give passage to ships unloading ore, loading aluminum

Kitimat, *continued*

from a glacial cirque and wrecked three towers.

Like baseball players or seamen, aluminum workers have a jargon of their own. They call furnaces "pots." More than 100 pots make a line. One pot line requires two or three buildings—each one almost as long as four football fields stretched end to end (left). Looking ahead, thinking big, Kitimat people boast to visitors that someday there will be 16 pot lines housed in 34 smelter structures. Then, from once-obscure Kitimat, transports will take some 550,000 tons of aluminum a year.

There is more than aluminum for Kitimat people. There is the big-shouldered out-of-doors, sparkling fresh mountain air for hikers, scenery for nature lovers, fish for anglers, big game for hunters.—S.H.

National Geographic References

Map—"Canada, Alaska, and Greenland" (50¢). ***Magazines*** September, 1956, "Kitimat—Canada's Aluminum Titan," (school price, 55¢); August, 1955, "Across Canada by Mackenzie's Track," (75¢); June, 1947, "*Endeavour* Sails the Inside Passage," (75¢, includes above-mentioned map).